



A study of prevalence of sexually transmitted infections & response to syndromic treatment among married women of reproductive age group in rural area of Parol Primary Health Centre under Thane district, Maharashtra, India

Parmar Mehl Tribhovandas^{1*}, Solanki Harsha Mansukhbhai¹, Gosalia Vibha Vinodkumar¹

ABSTRACT

Objectives To study prevalence of Sexually Transmitted Infections (STIs - symptomatic, clinical & laboratorial) & response to syndromic treatment in among STI groups.

Design Community based interventional study

Setting Rural area-Parol Primary Health Centre (PHC), District Thane, Maharashtra state.

Population Women of reproductive age groups 15-45 years

Methods Community based interventional study, conducted among representative group of 415 women of reproductive age groups, by simple random sampling technique in Parol PHC, District Thane, Maharashtra state. All symptomatic & asymptomatic women were counseled for examination & investigations & given syndromic treatment. Follow-up done to assess impact of syndromic treatment.

Main Outcome Prevalence of STI symptomatically was 39%, clinically 32.3% & Laboratorial 26%. After syndromic treatment, prevalence of STIs has statistically significantly reduced

Statistical Analysis Z-test

Results Of the surveyed women (415), prevalence of STI symptomatically was 39%, clinically 32.3% & Laboratorial 26%. The most common presenting symptom was vaginal discharge (36.4%) followed by Burning Micturition (24.7%), Vulval itching (17.3%), Lower abdominal pain (13%) & Genital ulcer (8.6%). Clinically, 55.2% women were diagnosed as cervicitis & 44.8% as PID. Laboratorial diagnosed STIs were - vaginal candidiasis 46.3%, Bacterial vaginosis 25%, Trichomoniasis 19.4%, Genital Herpes 7.4% & HIV 1.9%. After syndromic treatment, prevalence of STIs has statistically significantly reduced.

Conclusion: Syndromic Rx & health education can definitely reduce STIs.

Keywords: Sexually Transmitted Infections, Syndromic Treatment, Rural area.

INTRODUCTION

STIs are a major global cause of acute illness, infertility, long term disability & death, with severe medical & psychological consequences for millions of men, women & infants. WHO estimated, 340 million new cases of syphilis, gonorrhoea, chlamydia & trichomoniasis have occurred

throughout the world in 1999 in men & women aged 15-49 years¹.

As large numbers of STIs are asymptomatic, moreover, only part of the symptomatic population seeks health care & even a smaller number of cases are reported. The social stigma usually associated

GJMEDPH 2013; Vol. 2, issue 3

¹Assistant Professor
Government Medical College
Bhavnagar, Gujarat, India

*Corresponding Author
Anand Krupa, Plot No. 1081-A/3
Muni Dairy Chowk, Ambawadi,
Bhavnagar, Gujarat, India
hum_09@yahoo.co.in

Conflict of Interest—none

Funding—none



with STIs may result in people seeking care from alternative providers or not seeking care at all. However symptomatic & asymptomatic infections can lead to the development of serious complications with severe consequences for the individuals & community. In developing countries STIs & their complications are amongst the top five disease categories for which adults seek health care². Apart from being serious diseases in their own right; STIs enhance sexual transmission of HIV infection. The presence of untreated STIs can increase the risk of both acquisition & transmission of HIV by a factor of up to 10³.

The scale of STI problem is too great to be dealt with in specialized STI centres alone & steps must be taken to expand & integrate STI management in primary & other health facilities. But due to low literacy level, limited exposure to mass media & interpersonal communication, rural reproductive population has a very poor perception of their sexual health & sexual health needs. Absence of female service providers, lack of privacy & distance inhibit women from seeking treatment. Hence, it is important to provide accessible STI services at community level.

However, most of the Indian studies on reproductive health of women have been conducted at hospitals & in clinical setting such as STI or antenatal clinic. The main problem in conducting the community-based study in rural India is its feasibility & accessibility to the population in need.

Similarly many low-income countries with limited laboratory services, especially in rural areas, have adopted syndromic treatment of STIs. With this approach patients are treated on the basis of groups of symptoms & signs (syndromes) rather than by identifying specific STI pathogens.

Taking into consideration all above factors, study was conducted in rural area of Thane district which includes prevalence of STIs, speculum examination, investigations & syndromic treatment.

METHODS

The present community based, interventional study, was carried out over duration of 12 months,

among women of reproductive age group, in rural area-Parol Primary Health Centre (PHC), District Thane, Maharashtra state, affiliated to Department of PSM of Topiwala National Medical College (TNMC) & B. Y. L. Nair Ch. Hospital, Mumbai. Verbal permission was taken from the Head of Department of Preventive & Social Medicine for conducting study. Parol PHC has 7 sub centres, 17 villages & total population of 20,586, which includes 4150 women in reproductive age group. A pilot study was carried out among 65 married women of reproductive age group (50% of eligible couple population of one of the selected village) wherein, the prevalence of STI was found to be 49%. Taking into consideration the prevalence of STI obtained in the pilot study & 10% allowable error, the estimated study sample size was 416. These women were selected by stratified systematic simple random sampling method of which one woman refused for interview in spite of counselling hence constituting sample size of 415 for the study. Stratification was done at village level & women were selected from each village according to proportional allocation. For selection of household in the village, first we calculated sampling interval by dividing total population by sample size. After calculating sampling interval, first house was selected randomly & than sampling interval added to that random number to get desire number of women in each village. The verbal consent was taken before collecting data from the women who were included in the present study.

The household survey was carried out among study group to reveal their socio demographic characteristics, reproductive history, clinical symptoms regarding reproductive tract, treatment-seeking history & sexual behaviour. At the end of interview, list of symptomatic & asymptomatic women willing for syndromic treatment was given to the Auxiliary Nurse Midwife (ANM) & Anganwadi worker of respective village, so that they can bring women to sub centre on the day of examination decided for clinical examination & various investigations. The symptomatic & asymptomatic women along with their partners were then given syndromic treatment as per National AIDS Control Organization guidelines. The follow up & post test counselling was done after seven days at the respective sub centre, to see whether she has relieved of her symptoms. If not, she was given

drugs again for seven days to complete full course of 14 days.

CONCEPTUAL FRAMEWORK

Total population of PHC (rural area) (20,586)



Total population of women of reproductive age group – 4150



Based on STI prevalence obtained in the pilot study i.e. 49% & 10% allowable error- sample size calculated using $4PQ/L^2$ i.e. 415 who were selected by stratified systematic simple random sampling



Stratification was done at village level & women were selected from each village according to proportional allocation



Sample population was then selected from each village by systematic simple random sampling method to identify women of reproductive age group to screen women for STI symptoms



Symptomatic & asymptomatic women were counselled for examination (per speculum) &

investigations (Gram stain, Ph, VDRL, HIV & Pap smear screening)



*Syndromic treatment of STI under supervision of Auxiliary Nurse Midwife

**The camps for syndromic treatment of STI were held at sub centre & PHC depending on the feasibility. In camp, woman first counselled regarding her symptoms & investigations to be done & verbal consent was obtained in all cases. With due respect & privacy, speculum examination was done & specimen collected for ph testing, saline wet mount, Gram stain & Pap smear & blood collection for VDRL & HIV. The specimens were taken to rural hospital for testing.*

The laboratory tests used are as follow:

Vaginal pH testing: determined by dipping pH paper into the discharge present on vaginal speculum.

Amine test: done by adding drop of 10% KOH on vaginal discharge taken on a clean microscopic slide.

Gram-staining: Pap smear: to detect Gonorrhoea, BV, vaginal candidiasis & early neoplastic changes.

Diagnostic criteria used to define STIs:

CLINICALLY DIAGNOSED STIs	
1. Cervicitis ⁴	Cervical erosion with purulent discharge from cervix
2. PID ⁴	Adnexal tenderness &/or presence of tender adnexal mass on bimanual pelvic examination
LABORATORY- DIAGNOSED RTIs	
1. Syphilis ⁵	
a. Current infection	Positive serology by RPR test.
b. Past infection	Positive result on Treponema pallidum particle agglutination test.
2. Gonorrhoea ⁶	Identification of gram negative intracellular diplococci in Gm stained cervical smear
3. Bacterial vaginosis ^{7,8}	Presence of at least three of the following:
AMSEL CRITERIA	(a) watery vaginal discharge, (b) elevated pH (>6), (c) positive amine odor test, (d) presence of clue cells in Gram-stained vaginal smear
4. Trichomoniasis ⁹	pH > 5.5
5. Vaginal Candidiasis ¹⁰	Presence of clinical signs (red, inflamed tissue & curdy white discharge) + Gm positive yeast bodies
OTHER GYNECOLOGIC CONDITIONS	
Infertility ⁴	Inability to conceive after two years of sexual activity without contraception in a couple trying to conceive based on history.

The data was analyzed & then compared with various studies done previously & presented in the form of tables & graphs

RESULTS

Knowledge of STI was very low in all aspects while almost > 50% women had heard about HIV & nearly 50% women knew about its transmission &

preventive modes. 86.7% women had knowledge about contraceptive methods though the use of contraceptive methods was comparatively low (54.2%) (Table 1).

Table 1 Knowledge, attitude & Practices of study group regarding STI, HIV & contraception (N=415)

<u>Knowledge of STI</u>	No.	%
Heard	114	27.5
Mode of STI transmission	94	22.7
Symptoms	69	16.6
Curable	84	20.2
Prevention Modes	85	20.5
<u>Knowledge of HIV/AIDS</u>	No.	%
Heard of HIV/AIDS	225	54.2
Mode of HIV transmission	205	49.4
Prevention	203	48.9
<u>Knowledge of Family Planning</u>	No.	%
Heard of FP Methods	360	86.7
Currently Using any method	225	54.2
<u>Knowledge of STI</u>	No.	%
Heard	114	27.5
Mode of STI transmission	94	22.7
Symptoms	69	16.6
Curable	84	20.2
Prevention Modes	85	20.5
<u>Knowledge of HIV/AIDS</u>	No.	%
Heard of HIV/AIDS	225	54.2
Mode of HIV transmission	205	49.4
Prevention	203	48.9
<u>Knowledge of Family Planning</u>	No.	%
Heard of FP Methods	360	86.7
Currently Using any method	225	54.2

Table 2 Different STIs diagnosed symptomatically, clinically & by laboratory

Total Surveyed women = 415		
SYMPTOMATICALLY DIAGNOSED STIs (N=162)	No.	%
Vaginal Discharge (VD)	59	36.4%
Burning Micturition (BM)	40	24.7%
Vulval itching (VI)	28	17.3%
Lower abdominal pain (LAP)	21	13.0%
Genital ulcer (GU)	14	08.6%
Total	162	100%
CLINICALLY DIAGNOSED STIs (N=134)	No.	%
1. Cervicitis	74	55.2%
2. PID	60	44.8%
Total	134	100%
LAB. DIAGNOSED STIs (N=108)	No.	%
1. Syphilis	00	0%
2. Gonorrhoea	00	0%
3. Vaginal candidiasis	50	46.3%
4. Bacterial vaginosis	27	25.0%
5. Trichomoniasis	21	19.4%
6. Genital Herpes	08	07.4%
7. HIV	02	01.9%
Total	108	100%
OTHER GYNEC. CONDITIONS	No.	%
1. Infertility	17	4.1%

The prevalence of STI symptomatically, clinically & by laboratorial method was 39%, 32.3%, & 26% respectively (**Fig. 1**). Among the women who were presenting symptomatically, the most common presenting symptom was vaginal discharge (36.4%), followed by burning micturition (24.7%),

vulval itching (17.3%), lower abdominal pain (13.0%) & least common was genital ulcer (8.6%). Clinically cervicitis was present in 55.2% & Pelvic Inflammatory Disease in 44.8%. The most common laboratorial STI was vaginal candidiasis in 46.3% women & least common HIV in 1.9%. (**Table 3**)

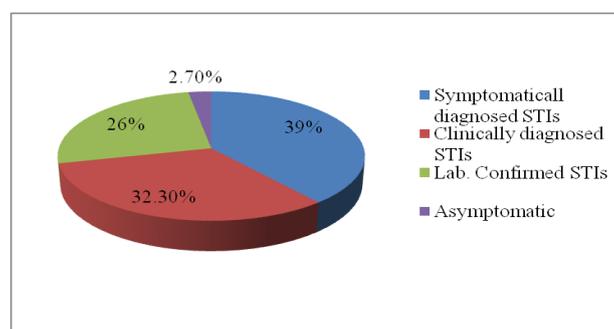


Figure 1 Prevalence of Symptomatic, clinical & lab. Confirmed STIs (N=415)

Table 3 Outcome assessment of STIs

STIs	Cured	Improved	Rx failure
GU	size reduction of 90% / >	50–90% reduction	Still 50% / > in size than it was at enrolment.
Genital Discharge	no symptoms / discharge	reduction in symptoms & discharge	No improvement
BM, VI, LAP	no symptoms	reduction in symptoms	No improvement
Cervicitis	size reduction of 90% / > & discharge	50–90% reduction in size & reduction in discharge	No improvement
PID	adnexal tenderness &/or presence of tender adnexal mass on bimanual pelvic examination	-	No improvement

Treatment & follow up

Table No. 4 gives assessment criteria for STIs after treatment. Those who were diagnosed as STI (symptomatically, clinically & by laboratory method), treatment was provided to them according to national guidelines for STI treatment¹⁵. After one week, follow up questionnaire was administered asking participants about any current symptoms followed by clinical examination done to look for further signs of ulcers & discharge. Outcome assessment of STIs was

made by clinician (Table 4). In cases of treatment failure second line treatment was given after seven days. Participants not returning for FU were visited at home. A field worker administered a questionnaire, but did not perform a clinical examination. The field worker recorded patient's self-assessment of cure, whether they had fully complied with the medication, any current symptoms, & reasons for not returning for their FU visit.

Table 4 Proportion of pre-syndromic & post-syndromic treatment groups

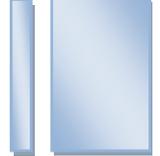
Groups of STIs	Pre-syndromic Rx % (No.)	Post-syndromic Rx % (No.)	S.E.	Z	significance
Symptomatic	39% (162)	14% (58)	3.0	8.3	S
Clinical	32.3% (134)	9.4% (39)	2.7	8.5	S
Lab.	26% (108)	9.6% (40)	2.6	6.3	S

It was observed that after syndromic treatment - Symptomatic, clinical & lab prevalence of STIs has statistically significantly reduced from 39% to 14%, 32.3% to 9.4%, and 26% to 9.6% respectively.

DISCUSSION

In the present study, knowledge of STI was very low in all aspects compared to HIV knowledge (mode of transmission & preventive measures). The present study reveals that in spite of significant awareness

about family planning methods i.e. 86.7% only few women were (54.2%) using contraception. Similar findings were observed by Nikhilesh Parchure, wherein knowledge about STI was low compared HIV/AIDS¹¹. The prevalence of STI symptomatically was 39%, those who diagnosed as STI clinically was 32.3% & those confirmed on laboratory was 26%. In a study done by Monika Rathore, prevalence of STIs symptomatically was 55% & clinically 61%¹². Among symptomatically diagnosed STIs, most



common presenting symptom was vaginal discharge (36.4%) & least common was Genital Ulcer (8.6%). Those who were diagnosed by clinically STI - cervicitis was present in 55.2% & Pelvic Inflammatory Disease in 44.8%. The most common laboratorial STI was vaginal candidiasis in 46.3% women & least common HIV in 1.9%. In a study by S C Panda et al, prevalence of STI was 39.2% {rural (44%); urban (32%)}. The commonest STI symptom was vaginal discharge (91%) followed by lower abdominal pain (64%), backache (76%), vulval itching (51%) & burning micturition (34%)¹³. In a study done by Singh MM, prevalence of specific infections were: vaginitis - 52.1%, trichomoniasis

(29.2%), candidiasis (22.9%), cervicitis -20.8%, PID (14.6%), combined Urinary Tract Infections & Pelvic Inflammatory Disease (4.2%)¹⁴.

CONCLUSION

In the present study, prevalence of symptomatic, clinical & laboratorial diagnosed STIs among was quite high. This was significantly reduced by syndromic Rx of STIs as per NACO guidelines if followed properly as per guidelines. Hence in rural area, to reduce STIs, NACO guidelines for syndromic Rx & health education to create awareness of STIs & to motivate rural women in treatment seeking should be adopted consistently.

REFERENCES

1. WHO. Global prevalence & incidence of selected curable sexually transmitted diseases: overview and estimates. World Health Organization, Geneva 2001.
2. World Bank. World Development report: Investing in Health Washington. 1993.
3. Gilson L, Mkanje R, Grosskurth H, Mosha F, et al. Cost-effectiveness of improved treatment services for sexually transmitted diseases in preventing HIV-1 infection in Mwanza Region, Tanzania. *Lancet* 1997;350:1805-09.
4. A. Joseph, Jasmin Prasad, Sulochana Abraham. Reproductive Tract Infections Among young married women in Rural Tamil Nadu. *International Family Planning Perspectives* 2005;31(2):73-82. ICRW (International centre for research on women).
5. Tramont E, Treponema pallidum, Mandell GL, Gordon Douglas JR, Bennett JE, eds. Principles & Practice of Infectious Diseases- New York: Churchill Livingstone. 1995;2117-2132.
6. World Health Organization. Neisseria gonorrhoeae & Gonococcal Infections. WHO Technical Report Series 1978; 616.
7. Amsel R et al. Nonspecific vaginitis: diagnostic criteria & microbial & epidemiologic associations. *American Journal of Medicine* 1983;74(1);14-22.
8. Nugent R, Krohn M and Hillier S. Reliability of diagnosing bacterial vaginosis is improved by a standardized method of Gram stain interpretation. *Journal of Clinical Microbiology* 1991; 29(2): 297-301.
9. Heine P and McGregor J. Trichomonas vaginalis: a reemerging pathogen. *Clinical Obstetrics & Gynaecology* 1993;36(1):137-143.
10. Sobar J. Candidal vulvovaginitis. *Clinical Obstetrics and Gynaecology* 1993;31(1):153-165.
11. Monika Rathore, Leela Vyas, A K Bhardwaj. Prevalence of Reproductive Tract Infections amongst ever Married Women & Sociocultural Factors Associated with. *Journal of Indian Medical Association* 2007;105:71- 78.
12. S C Panda, L Sarangi, D Bebartta, S Parida, O P Panigrahi. Prevalence of RTI/STI among Women of Reproductive Age in District Sundergarh (Orissa). *Indian Journal for the Practising Doctor*. 2007; 4(1); 03-04. ISSN: 0973-516X.
13. Singh MM, Devi R, Garg S, Mehra M. Effectiveness of syndromic approach in management of reproductive tract infections in women. *Indian Journal Medical Science* 2001; 55(4): 209-214.
14. Ministry of health Welfare, GOI, NACO, NRHM. National Guidelines on prevention, management & control of RTIs including STIs. August 2007.